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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,976	03/10/2004	Michael Ladwig	3351-028A	2277

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EXAMINER	
RADKIEWICZ, JARED	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/795,976	LADWIG ET AL.	
	Examiner	Art Unit	
	Jared W. Radkiewicz	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/5/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim 16 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 16 defines a computer software product embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some

computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 6** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 requires use of "connected element analysis", however this technique is not described in the specification nor is it well known to one of ordinary skill in the art. The term "connected element analysis" does not appear anywhere else in the U.S. patent database, the U.S. published applications database, the European patent office database, the Japanese patent office database, the IEEE

database, or on the internet as searched by Google as of the time of writing this office action. Further description of what is meant by "connected element analysis" is needed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-5, 11-14, and 16-19** are rejected under 35 U.S.C. 102(e) as being anticipated by Stalcup et al. (US 6,741,743 B2).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding **claim 1**, Stalcup teaches a method of automatically identifying a pattern on a page, comprising:

synthetically generating textual patterns as signal templates ("At step 400, patterns are generated from pre-selected documents using a signal template generator", Column 6 Line 26);

compensating, if necessary, for visual differences between the synthetically generated textual patterns and images being compared against the synthetically generated images ("A pre-processor will be able to determine the specific font size and type used in the document as well as any rotation that must be applied to the image templates that resulted from incorrect alignment of the page during the scanning process", Column 7 Line 22); and

comparing compensated images against images in a database ("An electronic version of a pattern stored in a first database is correlated with electronic versions of scanned documents stored in a second database", Column 2 Line 30).

Regarding **claim 16**, Stalcup teaches a computer software product ("machine executable instructions", Column 2 Line 38).

Regarding **claim 17**, Stalcup teaches an optical apparatus (Optical correlator 210, Figure 2).

Regarding **claim 18**, Stalcup teaches a computer readable medium (main memory 106, ROM 108, Storage device 110; Figure 1).

Regarding **claim 19**, Stalcup teaches a computer system (Computer system 100, Figure 1).

Regarding **claim 2**, Stalcup teaches the method of claim 1, comprising outputting a signal against a synthetically generated image ("An electronic version of a pattern stored in a first database is correlated with electronic versions of scanned documents stored in a second database", Column 2 Line 30).

Regarding **claim 3**, Stalcup teaches the method of claim 1, wherein said compensating step accommodates for visual differences between font typefaces and different font sizes ("A pre-processor will be able to determine the specific font size and type used in the document as well as any rotation that must be applied to the image templates that resulted from incorrect alignment", Column 7 Line 22).

Regarding **claim 4**, Stalcup teaches the method of claim 1, further comprising deleting a duplicate scanned first page ("The present invention uses optical correlation technology to identify duplicate and related documents", Column 5 Line 42).

Regarding **claim 5**, Stalcup teaches the method of claim 1, further comprising identifying pages as duplicates and assessing the duplicates for quality and deleting lower quality page of the duplicates ("optical correlator 210, which may determine that the scanned image is unacceptable for processing", Column 6 Line 23).

Regarding **claim 11**, Stalcup teaches the method of claim 1, wherein said compensating step can accommodate visual differences between different typefaces, different font sizes and distortions introduced in subsequent printing, handling and/or scanning of the page ("A pre-processor will be able to determine the specific font size and type used in the document as well as any rotation that must be applied to the image templates that resulted from incorrect alignment of the page during the scanning process", Column 6 Line 23).

Regarding **claim 12**, Stalcup teaches the method of claim 1, wherein said compensating step can accommodate visual differences occurring from producing a graphic image ("A pre-processor will be able to determine the specific font size and type used in the document as well as any rotation that must be applied to the image templates that resulted from incorrect alignment of the page during the scanning process", Column 7 Line 22).

Regarding **claim 13**, Stalcup teaches the method of claim 1, comprising creating a database of metadata to use in synthetically generating patterns ("an electronic version of a pattern stored in a first database", Column 2 Line 31).

Regarding **claim 14**, Stalcup teaches the method of claim 1, comprising creating a target to search for using a search word specified using numeric characters in the

search word ("the OC will be used to locate and highlight key words", Column 6 Line 63).

Regarding **claim 14**, Stalcup teaches the method of claim 14, wherein compensations include small enlargements or reductions in search pattern size or visual distortions ("A pre-processor will be able to determine the specific font size", Column 7 Line 22).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Stalcup et al. (US 6,741,743 B2) in view of Reavey et al. (US 2002/0113801 A1).

Regarding **claim 6**, Stalcup teaches claim 5.

Stalcup does not teach claim 5 further comprising performing a connected element analysis to identify speckle and blocks of solid color.

Reavey teaches identifying when text is difficult to read ("Maximum, or close to maximum, saturation of the text tends to blur the text", Reavey Paragraph 16)

It would have been obvious at the time of invention to one of ordinary skill in the art to identify unreadable text as demonstrated by Reavey in the invention of Stalcup to improve OCR performance.

7. **Claims 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stalcup et al. (US 6,741,743 B2) in view of Chen et al. (US 5,745,600).

Regarding **claim 7**, Stalcup teaches the method of claim 1, wherein the said compensating step comprises inserting a page image in the database ("An electronic version of a pattern stored in a first database is correlated with electronic versions of scanned documents stored in a second database", Column 2 Line 60) and mirroring the page (Stalcup requires the words to be aligned correctly).

Stalcup does not teach the method of claim 1, wherein the said compensating step comprises reducing resolution.

Chen teaches reducing resolution of an OCR candidate image before processing ("In the above discussion, the histogram of character spacing was developed over the whole image, either at full resolution (no reduction), or at reduced resolution", Chen Column 19 Line 56).

It would have been obvious at the time of invention to one of ordinary skill in the art to remove ambiguity when recognizing word boundaries.

Regarding **claim 8,** Stalcup and Chen teach the method of claim 7, comprising moving the page image from the spatial domain to a frequency domain ("The system may use wavelet transforms", Stalcup Column 7 Line 37).

8. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Stalcup et al. (US 6,741,743 B2) and Chen et al. (US 5,745,600) in further view of Messer et al. (US 2004/0190773 A1).

Regarding **claim 9**, Stalcup and Chen teach claim 8.

Stalcup and Chen do not teach claim 8 wherein the image is inverted.

Messer teaches inverting images ("The inverse binary representation converts all the ones (1) to zeroes (0) and all the zeroes (0) to ones (1), thereby indicating the color values are inverted", Messer Paragraph 50).

It would have been obvious at the time of invention to one of ordinary skill in the art to use inverted images in the database of Stalcup to provide an alternative search method as shown in Messer paragraph 50 that provides for more robust search performance.

9. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Stalcup et al. (US 6,741,743 B2) in view of Krtolica (US 5,719,959).

Regarding **claim 10**, Stalcup teaches claim 1.

Stalcup does not teach the method of claim 1, comprising producing a similarity matrix for search pattern locations identified in said comparing step.

Krtolica teaches the method of claim 1, comprising producing a similarity matrix for search pattern locations identified in said comparing step ("One affine-invariant feature useful for pattern recognition in general, and specifically for OCR, is a connectivity matrix of the intersections", Krtolica Column 3 Lines 30-33).

It would have been obvious at the time of invention to one of ordinary skill in the art to use a similarity matrix for pattern recognition in optical character recognition as taught by Krtolica in the invention of Stalcup as a "adequately robust technique for recognizing optical characters" (Krtolica Column 2 Line 12)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared W. Radkiewicz whose telephone number is (571) 270-1577. The examiner can normally be reached on 8:00 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JWR

/Brian P. Werner/
Supervisory Patent Examiner (SPE), Art Unit 2624